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progress in subtlety, we become more and more convinced of the limitations of the more obvious analogies.

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Let us now return to Swift. In his description of Gulliver's voyage to Laputa, he describes the mathematicians of that country as silly and useless dreamers, whose attention has to be awakened by flappers. Also, the mathematical tailor measures his height by a quadrant, and deduces his other dimensions by a rule and compasses, producing a suit of very illfitting clothes. On the other hand, the mathematicians of Laputa, by their marvelous invention of the magnetic island floating in the air, ruled the country and maintained their ascendancy over their subjects. Dr. Whitehead¹³ says: "Swift, indeed, lived at a time peculiarly unsuited for gibes at contemporary mathematicians. Newton's *Principia* had just been written, one of the great forces which have transformed the modern world. Swift might just as well have laughed at an earthquake." We cannot wholly subscribe to this, for it seems not unlikely that Swift, like everybody else, could not doubt the usefulness, importance, and correctness of the mathematician's work, but shared, with the philosopher, a doubt of the mathematician's being able to state his principles clearly and reasonably, just as we may doubt the existence of a knowledge of thermodynamics in a man who drives a railway engine.

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PHILIP E. B. JOURDAIN.

CURRENT PERIODICALS.

In the number of *Scientia* for August, 1915, Georges Bohn gives the second part of his article on new ideas on adaptation and evolution. It is interesting to notice that, according to the author, both Lamarck and Darwin were finalists. E. Carnevale contributes the second part of his study on democracy and penal justice. The articles concerned with questions raised by the war are by W. J. Ashley on "The Economic Conversion of England" and Charles Guignebert on the part played by the Roman Catholic Church—or what, according to him is the same thing, the Pope—in the European war. There is a short note by Federigo Enriques on the art of writing a treatise, prompted by his forthcoming book on the geometrical theory of equations and algebraic functions. There are reviews of books and periodicals, and French translations of the Italian and English articles.

¹³ A. N. Whitehead, *An Introduction to Mathematics*, London, 1911, p. 10.

It is very pleasant to see the *Revue de Métaphysique et de Morale*, whose publication has been suspended since the beginning of the European war. The number for September, 1914, appeared in June, 1915, and the only mark of the war on it is the article by Gustave Belot on war and democracy, and a study by André Lalande of the work of Louis Couturat. Couturat was a victim of the war: though not a combatant, he was killed on the day (August 3, 1914) on which Germany declared war on France, by a heavy automobile which was carrying orders of mobilization. The article is followed by a bibliography of Couturat's works together with a list of some of the reviews and translations of them. Couturat's literary activity may broadly be characterized by the names of his principal publications: (1) *De l'infini mathématique* of 1896; (2) *La Logique de Leibniz* of 1901 and *Opuscules et fragments inédits de Leibniz* of 1903; (3) *L'Algèbre de la Logique* of 1905; (4) *Les Principes des Mathématiques* of 1905. Since 1901 Couturat has been more and more busied with the problem of an international language, and Ido in particular, and here we may remind our readers of his article in *The Monist* for 1905. The other articles in this number of the *Revue* are Emile Boutroux's presidential address (April, 1914) to the international congress of mathematical philosophy; C. Bouglé's remarks on "polytelism"—the multiplicity of ends that one and the same means allows us to reach—; Désiré Roustan's on science as a vital instrument, and Léon Cahen's publication of some hitherto unpublished fragments of Condorcet on instinct, the words "nature" and "natural," and so on.

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Scientia (Rivista di Scienza) begins, with the first number (June and July, 1915) of the eighteenth volume, a second series, under the sole editorship of Eugenio Rignano. The reason for this is that in the future there will be, in addition to articles on scientific synthesis and organization, articles of international interest which carry a political responsibility that cannot be divided among a board of editors. The inquiry upon the causes of the war ends in this number, but there will be in future discussions of various problems raised by the war. The only purely scientific article in this number is one by Georges Bohn, pointing out that there are disharmonies in living beings, and that biologists, like metaphysicians, have hitherto had recourse to a theory of adaptation for special ends to explain what they took to be harmonies. The inquiry upon the war consists of a French article by Louis Havet, an English article by J. Holland Rose emphasizing the part played by nationality, and an Italian summary of the whole inquiry by Eugenio Rignano. Besides this there are reviews of books and other periodicals and French translations of the English and Italian articles.

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The first article in *Science Progress* for July 1915 is by H. Spencer Jones, "On the Structure of the Universe." The many re-

cent researches upon the distances and distribution of stars, upon the relative distances of stars of different types, upon the numbers of stars of different magnitudes, and upon allied topics, have all contributed in throwing some light on the problem of the structure and the evolution of the universe; and the author gives an account of these researches. The second article is an answer to Miss Stebbing's criticisms on Mercier's logic, by Charles A. Mercier. "Miss Stebbing's reply to my charges against logic," says the author, "does not seem to me successful, but as it does seem successful to some people, a rejoinder may be permitted." It is as impossible for a modern logician to deny the essential justice of Mercier's attack on the futile stuff taught as "logic" in the schools and the antiquated doctrine that the syllogism is the only principle of reasoning, as it is for any one with a sense of humor not to be amused by his writings. Maurice Copisarow gives a technical paper on "Carbon: Its Molecular Structure and Mode of Oxidation." None of the theories of Lang (1888), Baker (1888) and Dixon (1896, 1899), and Rhead and Wheeler (1910-1913) are absolutely wrong or a complete representation of the facts. The author starts from three fundamental assumptions as a basis. "i. A carbon molecule is polyatomic (This is suggested by its high volatilization-point and products of moist oxidation). ii. A carbon atom is potentially always tetravalent (Comberg's work on triphenylmethyl and Nef's on polymethylene compounds do not necessarily imply the non-tetravalency of a carbon atom). iii. Carbon exists in three allotropic modifications (Several new modifications suggested by Brodie, Berthelot, Luzi, and others have been proved by Moissan and Le Chatelier to be either compounds or solutions and mixtures of carbon with some other element)." There is an imaginative blank verse by George William Bettany on "A Bit of Rock." D. F. Harris and H. J. M. Creighton write on "The Role of Reductase in Tissue Respiration,"—also a technical paper. S. C. Bradford writes on "The History of Adrenalin." "The story of the discovery of the function of the suprarenal capsules, followed by the isolation of the active principle of their secretion, the determination of its structure, and its subsequent synthesis, forms one of the most fascinating chapters in the history of bio-chemistry." Of more general interest is the discussion by A. G. Thacker of "Some Eugenic Aspects of War." W. Lawrence Balls contributes an interesting account of "The Spinning Properties of Cotton." In a recent number of *Science Progress* he has indicated some of the ways by which purely scientific investigations were likely to yield results of economic value to the cotton trade. The present paper is to show how some unexpected light has since been thrown upon the causes on which the strength of yarn depends, thereby indicating the possibility of a substantial advance in the technique of spinning. Besides these articles, the number contains interesting essay-reviews and "Recent Advances in Science: Mathematics, Astronomy, Physics, Chemistry, Geology, Botany, Zoology, Anthropology." There are also notes and short reviews of various books. Φ